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CONDITIONAL APPROVAL O.U. 1 TREATABILITY WORK PLAN

DOCUMENT DATE 11-01-91

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George V. Voinovich
Governor

November 1, 1991

RE: CONDITIONAL APPROVAL
O.U. 1 TREATABILITY
STUDY W.P.

Mr. Jack R. Craig
Project Manager
U.S. DOE FEMP
P.O. Box 398705
Cincinnati, Ohio 45239

Dear Mr. Craig:

The purpose of this letter is to conditionally approve the Treatability Study Work Plan for O.U. 1. The conditions for approval are that DOE address, to Ohio EPA's satisfaction, the comments on the attached pages. In addition, this conditional approval does not cover Appendix D since it is Ohio EPA policy not to approve health and safety plans. If you have any questions about these comments please contact me.

Sincerely,

Graham E. Mitchell
Project Manager

GEM/bjb

cc: Kathy Davidson, OEPA
Jim Saric, U.S. EPA
Lisa August, Geotrans
Ed Schuessler, PRC
Robert Owen, ODH

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OHIO EPA COMMENTS ON:
DRAFT TREATABILITY STUDY WORK PLAN FOR OPERABLE UNIT 1
OCTOBER 1991

General Comment

1. DOE should consider incorporating some mechanism for quantifying the radon emission which occur during the treatment options. This information would be directly related to the evaluation of short-term effectiveness for the remedial alternatives. See Ohio EPA General Comment #4 (8/29/91).

2. Durability tests should be run during the advanced phase testing for the stabilization of untreated material. The following is the justification for these tests:
a) Through failure mechanisms such as: desiccation cracks, slope instability, settlement, piping, penetration, erosion, cold climate, earthquakes, and construction errors, water can permeate through the facility. Therefore the waste can become saturated, causing the stabilized waste to erode and possibly contaminate the surrounding area. Therefore to determine what waste matrix is the most durable (erosion resistant), a wetting and drying test is needed.
b) This radioactive waste has a life expectancy over 1000 years. There is no data available on the structural longevity of the low level radioactive waste facility. Since this remediation is to be a permanent solution, a durability test would provide data to help choose the most durable solidified waste matrix.
c) Radioactive waste will emit heat radiation as it decays. Proper venting of the stabilized waste will allow the waste to be cooled off, therefore a change in temperature will occur. With this change in temperature an additional source for degradation is encountered. A freezing and thawing test would provide data on the most durable form.
d) From the technical document: Stabilization/Solidification of CERCLA and RCRA Wastes; Physical Tests, Chemical Testing Procedures, Technology Screening, and Field Activities (EPA/625/6-89/02). In Section 4, Physical Tests to Characterize Waste Before and After Stabilization/ Solidification, recommends the use of five physical tests: index property, density, permeability, strength, and **durability** tests. Durability tests are the following 1) Freezing and Thawing Test of Solid Waste (ASTM D4842); 2) Wetting and Drying Tests of Solid Wastes (ASTM D4843).

Specific Comments

1. Section 1.2.4, pg. 18, Figure 1-3, 1-2: In addition to MCLs as Remedial Action Objectives, non-zero MCLGs should be included. The NCP' support of MCLGs has been previously emphasized by Ohio EPA in our comments on a number of documents.

2. Section 1.2.4, pg. 20, Figure 1-3, 6.: Incorporate non-zero MCLGs as ARARS. See previous comment.

3. Section 1.4.4, pg. 32, line 19: Short-term effectiveness could also be influenced by the amount of radon and organic vapors off-gassing during the various treatment options. See General Comment #1 above and previous General Comment #4b (8/29/91).

4. Section 3, pg. 7, Table 3-3: The table fails to include organic contaminants in water. Due to the presence of known organic contamination in the waste and groundwater near the waste pits, this table must include organic contaminants as in Table 3-2.

5. Section 4.1.3, pg. 6: DOE's response to OEPA General Comment #4b states that radon leachate concentrations will be measured. The Treatability Study Work Plan does not address this analysis. An additional appendices such as that submitted in the Addendum to Operable Unit 4 Treatability Study Work Plan (10/91) should be incorporated.

6. Section 4.1.5, pg. 6: All tests to be performed during the Optional Phase should be submitted to the EPAs for review and approval.

7. Section 15.: The Reference section has be left out of the document, please replace this section.

8. Appendix C, 5-Day Static Leach Test:
a) This test does not represent what conditions would be expected for waste placed in a disposal facility. Considering this waste disposal facility is to have an extensive life, the waste could go through many saturated cycles. A representative wetting cycle should be longer than 5 days.
b) The use of this test as a screening test is acceptable, if the Measurement of the Leachability of Solidified Low-Level Radioactive Waste by Short-Term Procedure (ANSI/ANS-16.1-1986) is used in the advanced phases.